

THE CLAIMS

1. A collector structure that is arranged to be located at a level above a field of reflectors and to receive solar radiation reflected from reflectors within the field; the collector structure comprising an inverted trough
5 and, located within the trough, a plurality of longitudinally extending absorber tubes that, in use, are arranged to carry a heat exchange fluid, the absorber tubes being supported side-by-side within the trough and each absorber tube having a diameter that is small relative to the aperture of the trough.
- 10 2. The collector structure as claimed in claim 1 wherein the ratio of the diameter of each absorber tube to the dimension of the trough aperture is in the range of 0.01:1.00 to 0.10:1.00.
- 15 3. The collector structure as claimed in claim 1 wherein the ratio of the diameter of each absorber tube to the dimension of the trough aperture is of the order of 0.03:1.00.
4. The collector structure as claimed in any one of claims 1 to 3 wherein
20 there are of the order of ten to thirty of the absorber tubes supported side-by-side within the trough.
5. The collector structure as claimed in any one of claims 1 to 3 wherein there are sixteen of the absorber tubes supported side-by-side within
25 the trough.
6. The collector structure as claimed in any one of claims 1 to 5 wherein each of the absorber tubes is constituted by a metal tube.
- 30 7. The collector structure as claimed in any one of claims 1 to 6 wherein each of the absorber tubes is coated over at least a portion of its surface with a solar absorptive material coating.

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8. The collector structure as claimed in any one of claims 1 to 7 wherein the absorber tubes are freely supported by a series of rotatable support members which extend orthogonally with respect to the absorber tubes.

5 9. The collector structure as claimed in any one of the preceding claims and incorporating a longitudinally extending roof, and wherein the inverted trough is located in spaced relationship below the roof.

10 10. The collector structure as claimed in claim 9 wherein an insulating material is located in the space between the inverted trough and the roof.

15 11. The collector structure as claimed in any one of the preceding claims wherein a window that is substantially transparent to solar radiation extends across the aperture of the inverted trough and thereby closes the trough to create a heat confining cavity within the trough.

20 12. The collector structure as claimed in claim 11 wherein the window is formed from a flexible plastics sheet material that is connected to marginal side wall portions of the trough.

25 13. The collector structure as claimed in claim 12 wherein means are provided to pressurise the cavity and thereby inflate the window in a direction away from the absorber tubes.

30 14. The collector structure as claimed in any one of the preceding claims wherein means are provided in use to control flow of the heat exchange fluid in parallel, linear streams through the plurality of absorber tubes.

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15. The collector structure as claimed in any one of the preceding claims and including means provided for selectively varying the channelling of the heat exchange fluid into and through the plurality of absorber tubes whereby the absorption aperture of the collector structure is, in use, effectively varied.

16. A collector system comprising a plurality of the collector structures as claimed in any one of the preceding claims, the collector structures being connected together co-linearly to form a row of the structures.

17. The collector system as claimed in claim 16 wherein each of the absorber tubes extends along the full row as a single length of tubing.

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